REMARKS/ARGUMENTS

These remarks are offered in response to the Office Action of November 3, 2004 (Office Action). As this response is timely filed within the 3-month shortened statutory period, no fee is believed due.

As a preliminary matter, Applicants wish to thank the Examiner for a thorough review of the instant application and for providing clear, detailed comments to assist the Applicants in generating their response.

In paragraphs 1 and 2 of the Office Action, the Examiner has rejected claims 11 and 25 under 35 U.S.C. § 112. Applicants have amended claims 11 and 25 to replace the phrase "general purpose second speech recognizer" with "speaker independent second speech recognizer", as supported by page 8, lines 13-19, page 11, lines 8-21, and by the specification in general. Responsive to this amendment, Applicants respectfully request the withdrawal of the 35 U.S.C. § 112 rejections.

In paragraphs 3-4 of the Office Action, the Examiner has rejected claims 1-10, 14, 15-24, and 28 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,324,510 to Waibel, et al. (Waibel). Finally, in paragraphs 5-6 of the Office Action, the Examiner has rejected claims 12 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Waibel. The Examiner indicated that claims 13 and 27 include allowable subject matter.

In response to the Office Action, Applications have amended claims 1 and 15 to clarify that the decision networks utilize phonetic decision trees. Applicants have also amended claims 2 and 16 to emphasize that adding new nodes in the decision network for an acoustic context of the training data does not result in replacing a corresponding node of the first decision network. Amendments to claims 1, 2, 15, and 16 are supported by the specification between pages 13, line 1 to page 16, line 24, by FIG. 1, and by material contained elsewhere throughout the specification.

9

{FT258317;1}

Appln. No. 10/007,990
Amendment dated Feb. 03, 2005
Regarding Office Action dated Nov. 03, 2004
Docket No. DE9-2000-0040 (269)

Applicants have also added new independent claim 29 and new dependent claims 30-32. These claims emphasize the subject matter that is indicated as allowable in the Office Action. Specifically, the new claims emphasize that the second speech recognizer generated from the first speech recognizer and the domain-specific data has a larger domain than the first speech recognizer. These new claims are supported by page 11, lines 8-15 and by previous claims 1, 13, 15, and 27.

No new matter has been added as a result of these amendments.

Prior to addressing the rejections to the claims, a brief review of the Applicants' claimed invention may be helpful. According to the Applicants' claimed invention a first speech recognizer and domain-specific data can be combined to generate a second speech recognizer. The first speech recognizer can include a first decision network and its corresponding phonetic content. The second speech recognizer can include a second decision network and corresponding phonetic content. The structure and number of nodes within the second decision network can be different from the structure and number of nodes of the first decision network. More specifically, the Applicants' invention can identify new acoustic contexts where needed, and can introduce an appropriate number of new context-dependent HMMs or HMM states (based on, for example, a split-and-merge procedure with domain or data specific thresholds).

In contrast, Waibel teaches a structural modification and adaptation of a hierarchy of neural networks that are used for the estimation of output probabilities of a fixed set of context-dependent HMMs or HMM states. For that purpose, Waibel teaches the modification of the association between neural networks (or output probabilities), which allows the neural networks to either fall back to coarser acoustic contexts or to provide better output probabilities for domain specific contexts.

Turning to specific rejections on the art, claims 1 and 15 have been rejected under 35 U.S.C. § 102(e) based upon the teachings of Waibel. Claims 1 and 15 explicitly claim that the first decision network and the second decision network utilize a phonetic decision

10

{FT258317;1}

tree to perform speech recognition operations. Further, the Applicants claim that the number of nodes in the second decision network is not fixed by the number of nodes in the first decision network. For example, when the first decision network has 4 nodes, the second decision network might have 3, 4, 5, or any number of nodes.

Waibel does not explicitly or inherently teach the use of phonetic decision trees within a first decision tree network and a second decision tree network. In fact, Waibel explicitly teaches why phonetic decision tree usage to generate a speech recognizer is believed to be problematic. That is, Waibel states at column 4, lines 45-67 that phonetic decision trees are not adopted for various reasons. These reasons include: (1) in most cases, separate decision trees are used to independently cluster context classes for each monophone, and (2) phonetic decision trees often are highly unbalanced.

Since each claimed limitation under § 102(e) must be explicitly or inherently taught, and since Waibel fails in this regard, the § 102(e) rejection to claims 1 and 15 and claims dependent upon them should be withdrawn, which action is respectfully requested.

Claims 12 and 27, dependent upon claims 1 and 15, have been rejected under 35 U.S.C. § 103(a) based upon Waibel and Official Notice. The claimed limitation of decision networks based upon phonetic decision trees is not explicitly or implicitly taught by Waibel. Further, Waible fails to explicitly or implicitly teach that the decision networks of the first speech recognizer and the second speech recognizer can have a varying number of nodes, which is claimed by the Applicants. Since each claimed limitation must be explicitly or implicitly taught under § 103(a), the § 103(a) rejections to claims 12 and 27 should be withdrawn, which action is respectfully requested.

Further, under 35 U.S.C. § 103(a) referenced art cannot be modified in such a manner to render the art unsatisfactory for its intended purpose. Waibel teaches that a Hierarchy of Neural Networks (HNN) is to be used as a baseline tree having leaves matching leaf nodes of phonetic decision trees. In this regard, the phonetic decision trees matching HNN leaf nodes have a fixed structure, meaning that new nodes cannot be

11

added to a tree mated to the HNN without removing a pre-existing node. It is for this reason that Waibel propounds about why phonetic decision trees are ill suited for the invention described therein, which is why Waibel utilizes a HNN.

Any modification of Waibel that replaces the HNN with a phonetic decision tree goes against not only the expressed teachings of Waibel (column 4, lines 45-67), but would also render Waibel unsatisfactory for its intended purposes. This is particularly true for phonetic decision trees having differing numbers of nodes, since such a dynamic structure could not be matched to HNN leaf nodes as taught by Waibel. Consequently, for purposes of § 103(a) Waibel cannot be modified to render claims 1 and 15 obvious without resulting in the modified version of Waibel not being able to satisfactorily perform the purpose of Waibel. For this reason, Waibel should not be modified in the manner suggested for § 103(a) purposes relating to the present claims.

Further, under 35 U.S.C. § 103(a) referenced art cannot be modified in such a manner to change its principle of operation. To operate according to the operational principles of Waibel, HNN leaf nodes must be matched to corresponding leaf nodes of phonetic decision trees, as shown in FIG. 4 of Waibel. The Applicants claimed teachings contradict these principles in that the Applicants claimed teachings result in a generated second speech recognizer having a number of decision network nodes that can differ from the number of decision network nodes of first speech recognizer from which the second speech recognizer was generated. Accordingly, Waibel should not be modified in any manner for purposes of § 103(a) that would result in the HNN leaf nodes not matching corresponding leaf nodes of a phonetic decision tree.

In summary, Waibel fails to teach, explicitly, inherently, or implicitly each of the claimed limitations. Further, Waibel cannot be modified and directed towards the Applicants' claimed invention without (1) rendering the modified version of Waibel unsatisfactory for its intended purpose and/or without (2) changing the principle of
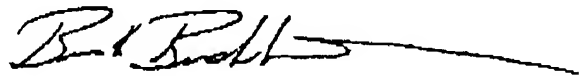
12

{FT258317;1}

operation upon which Waibel is based. Therefore, the § 103(a) rejections based upon Waibel should be withdrawn, which action is respectfully requested.

In light of the above, Applicants believe that this application is now in full condition for allowance. Allowance is therefore respectfully requested. Applicants request that the Examiner call the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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13

{FT258317;1}